

## **REMARKS**

With this Response, claims 1, 3, 9, 11-13, 15-22, 25-26, and 30 are amended. Applicants respectfully request that claims 2, 14, 23-24, and 31-33 be canceled without prejudice. Therefore, claims 1, 3-13, 15-22, 25-30, and 34 are pending.

## **ALLOWABLE SUBJECT MATTER**

Applicants acknowledge that claims 6-8 were found to have allowable subject matter. More particularly, these claims were objected to as being dependent upon rejected base claims, but would be allowable if rewritten in independent form. Applicants respectfully submit that the rejection of independent claim 1, from which these claims depend, is overcome herein, rendering these claims allowable as currently written.

## **CLAIM REJECTIONS - 35 U.S.C. § 101**

Claims 13-21 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. More particularly, these claims were rejected as having a claim scope that may include virtual objects and/or data structures. These claims are amended herein to recite an "article of manufacture comprising a machine-accessible medium having instructions stored thereon," which Applicants submit falls under one of the four statutory categories of claimable subject matter. Therefore, Applicants respectfully request that the rejection of these claims be withdrawn.

## **CLAIM REJECTIONS - 35 U.S.C. § 102**

Claims 1-2, 4, 9, 13-16, 22-25, and 30-34 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,860,081 of Herring et al. (hereinafter "Herring"). Applicants respectfully submit that these claims are not anticipated by the cited reference for at least the following reason.

The Office Action at page 4 asserts that "all that is needed to teach the independent claim features ... is a prior art system wherein an L1 cache is of a fixed size (static) and the L2 cache has an adjustable (dynamic) size." This assertion of the Office Action is based on the assumption at page 3 that "cache hierarchies are designed to evict data from a higher level cache to a lower level cache." Applicants must respectfully disagree with this reasoning and the application of

Herring to the claimed invention. There is no support in the reference for the assumption at page 3 of the Office Action. Per MPEP § 2131, "A claim is anticipated only if each and every element as set forth in the claim is found, **either expressly or inherently described**, in a single prior art reference." Case law citations omitted. Applicants point out that the Herring reference is **silent** as to eviction policies, either the eviction of data from L1 or the eviction of data from L2. Thus, the reference fails to expressly describe at least one element as set forth in the claim. Regarding inherently describing the features of the claim, Applicants observe that one of skill in the art discussed in Herring would be familiar with the fact that L1/L2 cache systems are commonly managed so that the L2 cache includes **all** the data that is in the L1 cache. Such a system configuration is not consistent with an assumption that data evicted from a higher level is evicted to a lower level cache, seeing that the lower level cache already had the data to begin with. Thus, Applicants submit that it is improper to assume that the silence of the reference discloses the features of Applicants' claims. There is no teaching either express or inherent in the reference that would suggest data is evicted from a higher-level cache to a lower-level cache, in contrast to what is set forth in Applicants' claims.

In fact, Applicants' claim 1 recites the following:

    caching data received from a data source within a static cache as stable data, the static cache having a fixed size;  
    evicting a portion of the stable data within the static cache to a dynamic cache when the static cache reaches a threshold fill level; and  
    **enrolling the evicted portion of the stable data into the dynamic cache as soft data**, the dynamic cache having a dynamically changing size according to availability of memory, where soft data is evicted from the dynamic cache prior to evicting stable data from the static cache if availability of memory is scarce.

Claims 13, 22, and 30 are also independent claims, and recite limitations directed to enrolling stable data evicted from a static cache as soft data into a dynamic cache.

Besides the deficiencies of failing to point to any teaching or suggestion of evicting data from a static cache to a dynamic cache, as recited in the claims, Applicants submit that the reference fails to disclose or suggest that the evicted data is enrolled as soft data. The Office Action asserts at page 3 that "'stable data' and 'soft data' have no intrinsic distinction from each other besides [the] fact that the first is located in the static memory and the second is located in the dynamic memory." Applicants disagree. The Office Action correctly points to paragraph [0029] of Applicants' Specification, which explains that data in the dynamic cache is soft data

that is "softly reachable." Applicants submit that one of skill in the art would recognize soft data that is "softly reachable" to refer to data that has a "soft reference," which prevents immediate eviction of the data from the cache, but will still allow eviction of the data if memory space is scarce. Thus, as described, it will remain in the cache, but is less likely to remain cached than stable data, which generally has a stronger reference.

Applicants thus submit that the independent claims include at least one feature that is not disclosed or suggested by the cited reference. The reference therefore fails to support an anticipation rejection of the independent claims under MPEP § 2131. The remaining claims depend from the independent claims, and so necessarily include the limitations of the independent claims from which they depend. Thus, the dependent claims are patentable over the cited reference for at least the same reasons as the independent claims.

#### **CLAIM REJECTIONS - 35 U.S.C. § 103**

##### **Claims 3, 5, 10-12 and 26**

These claims were rejected under 35 U.S.C. § 103(a) as being unpatentable over Herring in view of U.S. Patent No. 6,321,235 of Bird (hereinafter "Bird"). Applicants submit that these claims are not rendered obvious by the cited references for at least the following reasons. These claims depend from independent claims discussed above. As shown above, Herring fails to support a rejection of the independent claims, at least for failing to disclose or suggest at least one feature of the invention as recited in the independent claims. Bird is not cited as curing, nor does it cure the deficiencies of Herring set forth above. Whether or not Bird discusses an LRU implementation, the combination of the references fails to disclose or suggest at least the features discussed above. Therefore, whether alone or in combination, the references fail to support a rejection of the independent claims, and thus fail to support a rejection of these dependent claims.

##### **Claim 17**

This claim was rejected under 35 U.S.C. § 103(a) as being unpatentable over Herring in view of Bird, and further in view of U.S. Patent Application Publication No. 2003/0105936 of Stakutis et al. (hereinafter "Stakutis"). Stakutis is cited as disclosing a canonical mapping. Whether or not Stakutis discloses a canonical mapping, the reference fails to cure the

deficiencies of Herring and Bird as set forth above. Claim 13 is not rendered unpatentable by either Herring or Bird, or a combination. The combination of those references with the teachings of Stakutis still fails to disclose or suggest at least one feature of the invention as recited in independent claim 13. Therefore, claim 17, which depends from claim 13, is likewise not rendered unpatentable by the references either alone or in combination.

**Claim 27-29**

These claims were rejected under 35 U.S.C. § 103(a) as being unpatentable over Herring in view of Bird, further in view of U.S. Patent Application Publication No. 2003/0172145 of Nguyen et al. (hereinafter "Nguyen"). Nguyen is cited as disclosing a caching server. Whether or not Nguyen discloses a caching server, the reference fails to cure the deficiencies of Herring and Bird as set forth above. Independent claim 22, from which these claims depend, is not rendered unpatentable by either Herring or Bird, or a combination. The combination of those references with the teachings of Stakutis still fails to disclose or suggest at least one feature of the invention as recited in independent claim 22. Therefore, these claims are likewise not rendered unpatentable by the references either alone or in combination.

## CONCLUSION

For at least the foregoing reasons, Applicants submit that the rejections have been overcome. Therefore, all pending claims are in condition for allowance, and such action is earnestly solicited. The Examiner is respectfully requested to contact the undersigned by telephone if such contact would further the examination of the present application.

Please charge any shortages and credit any overcharges to our Deposit Account number 02-2666.

Respectfully submitted,  
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